

SYSTEM AND METHOD FOR SPECTRAL SHAPING OF DITHER SIGNALS

ABSTRACT

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An improved dither generation circuit and method for digital audio circuits generates pseudo-random numbers that are then interpreted as 2's complement numbers representing data points of a bipolar signal. The random number signal is high-pass filtered to reduce the energy contained in the audio band. The resulting dither signal is applied to the circuit in its main feedback loop and is effective to prevent idle tones. Because of its spectrally shaped characteristic this dither signal introduces less noise into the audio band of interest and thereby improves the overall signal-to-noise ratio of the audio circuit.

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These improved dithering methods and circuits are particularly useful in the context of high-fidelity digital modulator circuits, and in combination with other novel features developed by the same inventor for such circuits. As disclosed herein, the improved dithering methods are optionally and advantageously combined with particular improvements in mapping the output of a quantizer receiving the dither signals, and by including the mapping function in the circuit's main feedback loop.